ENVIRONMENTAL PROTECTION ACT, PART I: LOCAL AUTHORITY AIR POLLUTION CONTROLS

THE MONITORING AND DISPERSION OF EMISSIONS FROM PART B PROCESSES - CONSULTATION PAPER

1. INTRODUCTION

1.1 Part I of the Environmental Protection Act established the system of Local Authority Air Pollution Control. Under this system, operators of specified ("Part B") processes are required to apply for an authorisation to operate. Local authorities must include in authorisations conditions aimed at securing certain objectives, including the objective to use the Best Available Techniques Not Entailing Excessive Cost (BATNEEC) to prevent, minimise and render harmless emissions.

1.2 In order to assist local authorities in determining what constitutes BATNEEC for a given category of process, and in order to ensure the maximum practicable consistency of local authority decision, the Secretaries of State have issued 78 so-called "process guidance (PG) notes" which contain guidance on the standards that amount to BATNEEC for the 78 sectors concerned.

1.3 The PG notes contain guidance on emission limits, monitoring, operational controls, chimney height calculation, and other relevant control parameters. It is the intention to review each note every 4 years in order to keep it up-to-date, and as a means of assisting local authorities in keeping abreast with BATNEEC.

1.4 The first 4-yearly reviews will shortly be started. The Departments have, however, already looked generally at the published guidance notes and consider that, as a contribution to the individual reviews, there would be benefit from taking an overview of two issues which cut across all the notes. The two issues are monitoring of pollutants at source and dispersion of

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polluting emissions.

1.5 The purpose of this consultation paper is to set out and invite comment on a suggested framework in respect of these two issues, which can be used as the basis for the individual reviews. Comments are invited generally on the monitoring and the dispersion of emissions as they relate to Part B processes, and, in particular, on matters discussed in paragraphs 2.17-2.21, 2.23-2.24, 3.3, 3.5 and 3.9.

The appropriateness of the guidance on monitoring and dispersion contained in the individual PG notes will be considered as part of the 4-yearly of these notes, and respondents are asked not to raise detailed issues concerning individual notes other than by way of example of a general point they wish to make about the subjects covered in this consultation paper.

1.6 It should be noted that this paper is for consultation purposes only. It should not be taken to imply that any particular changes will be made to any of the published PG notes, each of which was drawn up in close consultation with interested organisations, when they are reviewed.

Compliance costs

1.7 The detailed compliance costs of this suggested framework will only be able to be assessed in relation to individual process categories. However, the broad effect of the proposals is intended to ensure that monitoring requirements are more precisely tailored to the needs of the particular situation, and that operators are only obliged to undertake the minimum amount of monitoring necessary to secure an adequate level of emissions control. Respondents are, however, invited to identify and quantify an additional direct or indirect costs (recurring and non-recurring) or savings likely to arise from the proposals.

Responses

1.8 A list of those being consulted can be found in the Annex to this paper. Further copies can be obtained from the following addresses. Queries and responses should be directed to the same addresses.

England: Ms J Dixon, DOE Air Quality Division, Room B348 Romney House, 43 Marsham Street, London SW1P 3PY (tel 071 276 8322).

Wales: Mr R Thomas, Welsh Office, Environment Division, Cathays Park, Cardiff CF1 3NQ (tel 0222 823499).

Scotland: Mr C Baird, The Scottish Office, Environment Department, Room 206, 83 Princes Street, Edinburgh EH2 2ER (tel 031 529 8655).

Responses should reach the Departments no later than Wednesday 7 September.

Technical enquiries should be directed to Mr C Megainey, Department of the Environment, Air Quality Division, Local Authority Unit, Units 15 - 17 Wrens Court, Lower Queen Street, Sutton Coldfield, B72 1RT (tel 021 362 1079)

1.9 The Departments may wish to publish responses to this consultation paper or to deposit them in the libraries of the Houses of Parliament or in the Departments' libraries, unless **specifically requested to treat a response as confidential. Confidential responses may nevertheless be included in any statistical summary of numbers of comments received and views expressed.**

2. MONITORING OF POLLUTANTS AT SOURCE

2.1 All of the PG notes contain guidance on the monitoring of emissions. This ranges from simple visual inspection to check the colour of smoke, to complex extractive sampling and continuous quantitative monitoring techniques. Such monitoring is essential in order to demonstrate that any abatement techniques are functioning to the expected standard and to demonstrate that any specified emission limits or other requirements are being met.

2.2 In drawing up each of the PG notes the Departments considered, in the context of deciding what constituted BATNEEC, what parameters ought to be monitored and what general type of monitoring methodology was appropriate for the particular category of process.

2.3 These decisions will now be open for reconsideration in the context of the 4-year review of each of the PG notes. Paragraphs 2.4-2.21 below set down the main considerations it is proposed to take into account in undertaking these reviews, under three headings:

- main types of monitoring methodology

- purpose of monitoring and key considerations for determining whether and what monitoring should be specified

- other criteria to be applied in reviewing the PG notes.

Main types of monitoring methodology

2.4 It is suggested that there are 7 broad categories of monitoring methodology. These may be summarised as follows:

Continuous quantitative monitoring

2.5 This will produce a continuous stream of numerical emissions data which will show compliance with a numerical emission limit.

2.6 It is possible to measure levels of many pollutants in this way. The necessary equipment, however, is often complex and generally incorporates computer software to manipulate the data into an assimilable form. Continuous monitoring devices require regular calibration against another quantitative method. For these reasons, this type of monitoring tends to be the most expensive.

Periodic quantitative monitoring

2.7 Depending on the pollutant concerned, this may utilise similar equipment to that used for continuous quantitative monitoring, but for a shorter and discrete period of time, or involve equipment which works on a completely different principle (for example, periodic quantitative monitoring may be carried out by means of extractive sampling).

2.8 Instrumental monitors for periodic quantitative monitoring require calibration against another quantitative standard, but some methods, for example that described in BS3405:1983 for particulate matter, represent an absolute standard.

Continuous indicative monitoring

2.9 By definition, this type of monitoring is to indicate relative performance and/or process variation. It does not provide data to demonstrate compliance with a numerical emission limit.

2.10 Since results are indicative only, calibration is generally not needed. Similarly, the same degree of precision is not necessary in the manufacture of this type of device as for quantitative instruments and costs are therefore lower.

2.11 The use of a continuous indicative monitor with some form of recorder is probably of greatest use in detecting performance trends and gradual failure of arrestment plant which require action by the operator. Local authorities will be able to use the results to check that operators are acting to deal with potential problems and the data may also indicate when an inspection visit might be made.

Periodic indicative monitoring

2.12 This sort of monitoring is generally carried out by means of gas detection tubes and its main function is normally to determine the order to magnitude of emissions and to identify where further monitoring is required.

Visual and olfactory monitoring

2.13 Most of the process guidance notes require regular visual assessments to be carried out for smoke and/or particulate matter emissions. Many notes, such as those relating to animal matter processing, also require olfactory monitoring to be undertaken. The notes mostly specify a minimum monitoring frequency of once a day; they all specify that results are recorded in a log book.

2.14 Visual and olfactory assessments are probably the most basic form of monitoring and their value is limited by their inherent subjectivity. However, these assessments are a generally inexpensive means of ensuring that operators keep a check on the key 'nuisance' parameters of smoke and smell and that problems are identified at a relatively early stage. (Dilution olfactometry is a 'semi-objective' means of odour assessment, and the circumstances in which it should be used are being considered as part of a separate exercise to look at odour measurement and control.)

Monitoring by surrogate

2.15 In some circumstances, particularly where direct monitoring of a pollutant is technically difficult or costly, it may be possible to obtain an indication of emissions or of arrestment equipment performance by a surrogate method. Examples include temperature monitoring of incinerators in place of dioxin monitoring; solvent usage inventories to determine VOC emissions; and replacement of filter bags at specified (recorded) frequencies rather than particulate monitoring.

Calculation of emissions

2.16 For some processes, in particular those involving combustion, it is possible to estimate with reasonable accuracy the likely levels of emissions. An example of this is the estimation of NO_X emissions from calculating the mass of NO_X released per unit mass of fuel burned.

> *Note: A review of monitoring techniques is contained in "Monitoring Emissions of Pollutants at Source", HMIP Technical Guidance Note M2, HMSO, November 1993, ISBN 0-11-752922-2, £10.00.*

Main purpose and considerations in deciding on type of monitoring

2.17 In determining which type of monitoring is appropriate in any given circumstance, it is considered that the key step should be to decide what information is needed to ensure adequate regulation of the process in question. In reaching a decision, careful consideration should be given to why any particular information is needed - or whether it is needed at all - and the use to which it will be put. It should be implicit in this that industry should not be expected to undertake any more monitoring than is absolutely necessary to adequately ensure compliance with the relevant control parameters.

2.18 In the context of local authority air pollution control, two main categories of information are needed:

a) data which demonstrates compliance with an emission limit or other emission requirement (eg smoke). Where a process is a steady state process in which the emissions are not expected to vary significantly with time,and where the guidance note specifies an absolute emission limit, it should be sufficient to rely on periodic quantitative monitoring. In other cases, for instance where releases are highly variable or where there is an averaged emission limit, continuous quantitative monitoring will normally be necessary to monitor compliance with the emission limit. For non-quantitative emission requirements, alternative methods will be needed, such as the use of opacity meters or visual inspection to monitor for dark smoke emissions, and olfactory assessments for smell.

b) data which demonstrates abatement equipment performance. This can normally be obtained by a combination of periodic quantitative monitoring and continuous indicative monitoring.

2.19 In many cases, when an authorisation has been granted for an existing process, the operator will wish to determine whether the process already meets the relevant emission limits or whether it requires upgrading in order to do so. In these circumstances, periodic quantitative monitoring is almost always appropriate. There is, on the other hand, little or no value in monitoring emissions if it is already evident that improvements will be required in order to comply with the relevant emission limits.

Other criteria to be applied in reviewing the PG notes

2.20 In addition to the two principal considerations discussed in paragraphs 2.18 and 2.19, other factors may need to be taken into account when deciding whether a particular monitoring methodology represents BATNEEC for a given category of process or for individual processes. It is suggested that the main additional considerations are as follows:

a) Practicability. There are situations where it is not technically feasible to undertake certain types of monitoring. For example, periodic quantitative monitoring of particulate matter emissions from some simple cyclones may not be a valid option because it will not be possible to obtain a representative sample isokinetically.

b) Availability. Certain types of monitoring may not be available for some pollutants. For instance, the Departments are not aware of any method currently available for the continuous quantitative monitoring of dioxins.

c) Low mass emission level. Continuous quantitative monitoring may not be justified for an individual emission point where the mass emission is known to be small, such as where the mass emission of VOC is less than 1kg in any 8-hour period.

d) Potential for harm from emissions. As implied by the BATNEEC concept, for some pollutants a rigorous monitoring approach will be justified because of the serious consequences of excessive emissions. The converse will also be the case for pollutants which have little potential for harm. In this latter category, for example, magnesium oxide emissions from foundries are highly visible but quite benign.

2.21 It is also proposed that the following two matters should be taken into account in reviewing the PG notes:

a) Surrogate techniques. As noted in paragraph 2.15 above, there are instances where surrogates to instrumental monitoring techniques may be usefully employed and some of these are already mentioned in the published PG notes. There may be scope for specifying more widespread use of surrogates, such as the use of temperature monitoring to determine the satisfactory performance of incinerators which have been installed to abate VOC emissions, which would be less expensive than continuous VOC monitoring.

b) Thresholds. Several PG notes already contain advice that sources which emit below a given threshold level of a particular pollutant should be exempted from monitoring. It is proposed to examine the scope to extend this approach consistent with retaining an adequate level of control.

Comments

2.22 Comments are invited, in particular, on the considerations and criteria set down in paragraphs 2.17-2.21, which it is proposed should provide the framework for reviewing the monitoring sections of the PG notes. Comments would also be welcome on the following two related matters.

2.23 The published PG notes generally contain little detailed advice on the appropriate specification of continuous monitoring systems. Views are sought on whether this guidance might be expanded to cover:

i) required performance standards for precision and repeatability;

ii) where 'continuous' monitors do not sample in a genuinely continuous manner, the minimum sampling and recording frequencies which should be permitted;

iii) the technical conditions under which shared time switching analysers should be allowed;

iv) in the case of discontinuous measurement (other than for particulate matter), the level of guidance on averaging and statistical treatment which should be given.

2.24 For some processes it may become clear, after a period in which either continuous indicative monitoring and periodic monitoring have been carried out or just periodic monitoring has been undertaken, that consistent compliance is being achieved. In these circumstances, it may be appropriate to reduce the frequency of any periodic monitoring or, on occasion, to dispense with periodic monitoring altogether and just retain continuous indicative monitoring. Comments are invited on whether the following clause might be inserted in all PG notes which require periodic monitoring.

> "If three or more periodic monitoring exercises, carried out over a period of at least two years, indicate consistent compliance with emission limits, local authorities should consider allowing an increased interval between future monitoring exercises. Such a relaxation should be considered sooner if the monitoring data obtained from periodic monitoring is supported by continuous indicative monitoring which shows consistent compliance. (In determining "consistent compliance" regard should be had to the variability of monitoring results and how close the results are to the specified emission limit. Thus, results which range from 10-48mg/m^3, against an emission limit of 50mg/m^3 might not qualify for a reduction in monitoring.)
>
> "Any dispensation granted should be reviewed in the event of the process being altered in any way which might give rise to increased emissions of the pollution to be monitored."

DISPERSION OF POLLUTING EMISSIONS

3.1 In June 1993 HMIP issued Technical Guidance Note D1[1] which

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[1] Technical Guidance Note (Dispersion) D1 - Guidelines on Discharge Stack Heights for Polluting Emissions, HMSO ISBN 0-11-752794-7, £8.00

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provides advice compiled by Warren Spring Laboratory on the calculation of discharge stack heights. Most of the PG notes were produced some time before this and inevitably there are certain areas in which the advice given is not entirely consistent.

Minimum stack heights

3.2 Probably the most significant difference between D1 and the PG notes concerns minimum stack heights. Many PG notes state that process emissions should be discharged at least 3 metres above the roof ridge height of any building with five uncorrected stack heights and at least 8 metres above ground level. D1 also sets out various criteria for minimum heights, but these tend to be less onerous than in the PG notes. For example, according to D1, discharge stacks should be at least 3 metres above any opening windows within five uncorrected heights. However, D1 does state that any minimum requirements of the PG notes should prevail.

3.3 In the light of the guidance from Warren Spring Laboratory and HMIP, it is the Department's view that adequate dispersion of residual emissions ought to be achieved by complying with the advice contained in D1. It is therefore proposed that, subject to detailed consideration of individual process guidance notes, the inconsistency between the published PG notes and D1 should be overcome by deleting the minimum stack height requirements contained in the PG notes and instead specifying compliance with the guidance contained in D1. Comments would be welcome on this proposal.

Efflux velocity

3.4 Another area where the PG notes and D1 are at variance concerns the minimum efflux velocity of emissions. Many of the PG notes specify that the efflux velocity should be at least $15ms^{-1}$. On the other hand, D1 suggests that, for discharges with very low heat release and momentum, 10ms^{-1} may suffice.

3.5 The Departments are again of the view that the advice contained in D1 ought to secure adequate emission control, and propose that, subject to detailed consideration of individual process guidance notes, the PG notes should be amended to refer to the relevant section of D1.

Dispersion of particulate matter

3.6 Uncertainties have also arisen concerning emissions in which the only pollutant of concern is particulate matter. PG notes covering processes ranging from mineral processes to foundries, and timber processes to animal feed compounding, contain the same clause, as follows:

> "Wherever possible, the final discharge point from particulate matter arrestment plant, where it is not necessary to achieve dispersion of the residual pollutants, should be at low level to minimise the effect on the local community in case of abnormal emissions and to facilitate maintenance and inspection."

3.7 Conversely, D1 indicates that the calculation method contained therein is suitable for small particulate pollutants, which are defined as particles of aerodynamic diameter below about 40µm. The authors of this document have confirmed that such particulates, which are likely to include those which pass through functional arrestment equipment, ought to be dispersed because they behave in a similar way to gases. Furthermore, there is some doubt as to whether low-level discharge will significantly reduce deposition rates away from the source.

3.8 The amendments to PG3/1(91) - blending, packing, loading and use of bulk cement - which were issued in June 1993, contain an amended version of this clause, which disapplies the requirement for low level discharge in the case of bag filters situated on the top of silos. This is in order that captured material can readily be returned to the silo. It may be appropriate to extend this exemption to cover other circumstances.

3.9 For the reasons given in paragraph 3.7, it is proposed to consider in reviewing each PG note the appropriateness of retaining the standard clause quoted in paragraph 3.6 - ie to consider whether, in the light of the information concerning small particles provided in D1, dispersion of the residual particulate matter emissions will ever be "not necessary". As part of this examination it is proposed in respect of each note to consider the general balance of cost against environmental protection (ie the BATNEEC equation), the practicability of fitting stacks to enable high level discharge, together with the following more specific criteria:

(a) **Is the arrestment equipment new or existing?** The alteration of existing filter housings to allow for the fitting of a stack may be problematic. In particular, the balance of the ventilation system will be disturbed and the pressure drop may increase.

(b) **Toxicity of the particulates released.** This may be an additional justification for dispersion.

(c) **Location of the discharge point.** The provision of a stack may be less worthwhile if the arrestment plant is situated in the middle of a large site, where a larger proportion of any discharge is likely to occur within the site boundary (subject to any health and safety requirements).

(d) **Presence of adjacent buildings.** Discharges should not be permitted close to areas to which people have regular access or opening windows.

(e) **The likelihood of failure.** As noted in (c) above and in D1, dispersion becomes more important as the risks associated with failure increase. Similarly, if the arrestment plant is unreliable, dispersion is more worthwhile. Indeed, in such circumstances, consideration should be given to calculating the stack on the basis of emission levels during periods of failure.

(f) **Emission levels during satisfactory operation of arrestment equipment.** In the majority of cases chimney heights are set on the basis of day-to-day emissions when any arrestment plant is operational (subject to paragraph (c) above). In such circumstances, the height of any stack will frequently be in line with the minimum requirements as discussed in paragraphs 3.2 and 3.3 above.

FOUR-YEARLY REVIEW OF PROCESS GUIDANCE NOTES

4.1 The aim is to review each published PG note with a view to issuing any amendments that arise out of the review at around the fourth anniversary of the publication date of the original note. However, because the extent and complexity of the issues arising under each review may vary, the Departments consider this to represent a broad aim, rather than a rigid timetable. It may also be appropriate to bring forward or defer the review of a particular note or notes, so that this is undertaken at the same time as a related batch of notes.

4.2 Annex 2 contains a list of the published guidance notes according to their publication date.

4.3 It is intended to follow generally the same procedure for the reviews as for the production of the original notes. Therefore, each review will be undertaken in consultation with a working party comprising representatives of the relevant and trade associations and local authorities. In some cases, it may be sufficient to conduct this in writing; in other cases, one or more meetings are likely to be required. This initial consultation stage will then be followed by a formal written consultation, involving a wider range of interested organisations.

4.4 In addition to the "cross-cutting" issues of monitoring and dispersion of emissions, it is proposed that the reviews will involve a detailed examination of the appropriateness, adequacy and clarity of each PG note.

LIST OF THOSE BEING CONSULTED

Adhesive Tape Manufacturers Assn
Aluminium Finishing Association
Asbestos Information Centre
Association of British Roofing Felt Manufacturers
Association of Bronze and Brass Founders
Association of Drum Reconditioners
Association of Industrial Graphics and Nameplate Manufacturers
Association of Light Alloy Refiners Ltd
Association of Metal Sprayers
British Adhesives and Sealants Association
British Aggregate Construction Materials Industries
British Association of Green Crop Driers Limited
British Association of Vehicle Spray Booth Mfrs
British Bait Breeders Assn
British Ball Clay Producers Federation
British Cast Iron Research Association
British Castings Research and Trade Association
British Cement Association
British Ceramic Confederation
British Ceramic Tile Council Ltd
British Ceramic Research Laboratories
British Coatings Federation
British Combustion Equipment Manufacturers Association
British Federation of Printing Machinery & Supplies Ltd
British Foundry Association
British Furniture Manufacturers Federation
British Independent Steel Producers Association
British Investment Casting Trade Association
British Laminators and Plastic Fabrication Association
British Leather Confederation
British Lime Association
British Metals Castings Council
British Non-Ferrous Metals Federation
British Paper and Board Industry Federation
British Precast Concrete Federation Ltd
British Printing Industries Federation
British Ready Mixed Concrete Association
British Rigid Urethane Foam Manufacturers Association
British Rubber Manufacturers Association Ltd
British Scrap Federation
British Stainless Steel Association
British Secondary Metals Assn
British Surface Treatment Suppliers Association
British Wood Preserving and Dampproofing Assn
British Woodworking Federation
Building Employers Confederation
Castings Technology International
Chamber of Coal Traders
Chemical Industries Association
China Clay Association
Coal Merchants Federation (GB) Ltd
Combined Heat and Power Association
Confederation of British Industry
Engineering Employers Federation
European Coil Coating Association
European Liquid Roofing Association
Executive Car Manufacturers Body Repair Council
Federation of British Cremation Authorities
Federation of Civil Engineering Contractors
Federation of Small Businesses
Federation of Spawned Compost Suppliers
Fertiliser Manufacturers Assn
Film Coating Industry Group
Flexible Packaging Assn Ltd
Food and Drink Federation
Funeral Furnishings Manufacturers Association

Furniture Industry Research Assn
Galvanisers Association
Garage Equipment Association
Institution of Burial and Cremation Administration
Institute of Diesel and Gas Turbine Engineers
Institute of Metal Finishing
Institute of Wastes Management
International Isocyanates Institute
Joint Animal By-Products Cttee
Licensed Animal Slaughterers and Salvage Association
Light Metal Founders Association
Made Up Textiles Association
Malt Distillers Assn of Scotland
Mastic Asphalt Producers Association
Metal Finishing Association
Metal Packaging Manufacturers Association
METCOM
Motor Vehicle Repairers Association
Mushroom Growers Association
National Association of Funeral Directors
National Association of Tripe Dressers
National Association of Waste Disposal Contractors
National Farmers Union
National Federation of Clay Industries Ltd
National Federation of Demolition Contractors
National Federation of Hide and Skin Markets
Newspaper Publishers Association
Newspaper Society
Oil and Colour Chemists Assn
Pet Food Manufacturers Assn
Pressure Sensitive Manufacturers Association
Proprietary Crematoria Assn
Railway Industry Association
Retail Motor Industry Federation
Refined Bitumen Association Limited
Retread Manufacturers Assn
RAPRA Technology ltd
Sand and Gravel Association
SATRA Footwear Technology Centre
Scotch Whisky Association
Screen Printing Association (UK) Ltd
Seed Crushers and Oil Processors Association
Silica & Moulding Sands Association
Silsoe Research Institute
Society of British Aerospace Companies Limited
Society of British Printing Ink Manufacturers Ltd
Society of Motor Manufacturers and Traders Ltd
Textile Finishers Association
Timber Packaging and Pallet Confederation
Timber Research and Development Association
Timber Trade Federation
Tobacco Advisory Council
United Kingdom Agricultural Supply Trade Association
United Kingdom Petroleum Industry Association Ltd
United Kingdom Renderers Association Ltd
Vehicle Builders and Repairers Association
Wallcovering Manufacturers Association of GB Limited
Waste Processing Association
Welding Institute
Wood Panel Products Federation
Zinc Alloy Die Casters Assn

A B B Flakt Industrial Ltd
Adtec (UK) Ltd
Air Products plc
Anacon Corp Ltd
Analytical Development Co Ltd
Association of Environmental Consultants
Beckman Industrial-Process Instruments and Control
Cambridge Instruments Ltd
Cavendish Applied Technology Ltd
Ceram Technology
Cerel Ltd

Colemoss Ltd
Combustion Development Ltd
Combustion Engineering Ltd
Compur Monitors
Delcita
Drager Ltd
EDT Analytical Ltd
Emission Technology
Environmental Research Technology Ltd
Envirotechnology
Erwin Sick Optic Electronics Ltd
Filtration Society
Gas Measurement Instruments Ltd
Hitech Instruments Ltd
HNU Systems Ltd
Horiba Instruments Ltd
J and R Scientific
Kent Industrial Measurements Ltd
Land Combustion, Lands Instruments International Ltd
Leeds and Northrup Ltd
Leybold Heraeus Ltd
Mannesmann, Hartmann & Braun
Nairb Air Ltd
Neotronics Ltd
Nicolet Instruments Ltd
Orbital Gas Systems Ltd
Perkin Elmer Ltd
Pollution Control and Measurement (Europe) Ltd
Procal Analytics Ltd
Quality Environment Ltd
Quantitech Ltd
Rigidon (UK) Ltd
Rosemount Ltd
Rotork Analysis Ltd
Servomex Ltd
Severn Science (Instruments) Ltd
Shawcity Ltd
Signal Instrument Company Ltd
Stein Atkinson Stordy Ltd
Telsec Process Analysers Ltd
Thermoelectron Corporation
Testotherm Ltd.
Windsor Scientific Ltd

All Wales Chief Environmental Health Officers Panel
Association of District Councils
Association of Metropolitan Authorities
Association of Port Health Authorities
Convention of Scottish Local Authorities
Council for Welsh Districts
Institution of Environmental Health Officers
Royal Environmental Health Institute of Scotland
all District and Borough Councils in GB

British Ecological Society
Conservation Foundation
Conservation Trust
Countryside Council for Wales
English Nature
Environment Council
Friends of the Earth
Friends of the Earth Cymru
Friends of the Earth (Scotland)
Institute of Water and Environmental Management
National Society for Clean Air and Environmental Protection
National Society for Clean Air (Scottish Division)
Royal Commission on Environmental Pollution
Royal Society for the Promotion of Health
Scottish Natural Heritage
UK Environmental Law Association
Women's Environmental Network
World Wide Fund for Nature

Annex 2

DATE OF PUBLICATION FOR EXISTING PROCESS GUIDANCE NOTES

Notes published in February 1991

PG1/1(91) - waste oil burners, less than 0.4MW net rated thermal input
PG1/2(91) - waste oil or recovered oil burners, less than 3MW net rated thermal input
PG1/3(91) - boilers and furnaces, 20-50MW net rated thermal input
PG1/4(91) - gas turbines, 20-50MW net rated thermal input
PG1/5(91) - compression ignition engines, 20-50MW net rated thermal input
PG1/6(91) - tyre and rubber combustion processes between 0.4 and 3MW net rated thermal input
PG1/7(91) - straw combustion processes between 0.4 and 3MW net rated thermal input
PG1/8(91)* - wood combustion processes between 0.4 and 3MW net rated thermal input
PG1/9(91) - poultry litter combustion processes between 0.4 and 3MW net rated thermal input
PG2/1(91) - furnaces for the extraction of non-ferrous metal from scrap
PG3/1(91)* - blending, packing, loading and use of bulk cement
PG3/2(91) - manufacture of heavy clay goods and refractory goods
PG3/3(91) - glass (excluding lead glass) manufacturing processes
PG3/4(91) - lead glass manufacturing processes
PG3/6(91) - processes for the polishing or etching of glass or glass products using hydrofluoric acid
PG5/1(92) - clinical waste incineration processes under 1 tonne an hour
PG5/2(91) - crematoria
PG5/3(91) - animal carcase incineration processes under 1 tonne an hour
PG5/4(91) - general waste incineration processes under 1 tonne an hour
PG5/5(91) - sewage sludge incineration processes under 1 tonne an hour
PG6/2(91)* - manufacture of timber and wood-based products
PG6/3(91)* - chemical treatment of timber and wood-based products
PG6/4(91) - processes for the manufacture of particleboard and fibreboard
PG6/5(91) - maggot breeding processes

Notes published in July 1991

PG2/2(91) - hot dip galvanising processes
PG2/3(91) - electrical and rotary furnaces
PG2/4(91) - iron, steel and non-ferrous metal foundry processes

PG2/5(91) - hot and cold blast cupolas

PG2/6(91) - aluminium and aluminium alloy processes

PG2/7(91) - zinc and zinc alloy processes

PG2/8(91) - copper and copper alloy processes

PG2/9(91) - metal decontamination processes

PG3/5(91) - coal, coke and coal product processes

PG3/7(91) - exfoliation of vermiculite and expansion of perlite

PG3/8(91) - quarry processes including roadstone plants and the size reduction of bricks, tiles and concrete

PG3/9(91) - sand drying and cooling

PG3/10(91) - china and ball clay

PG3/11(91) - spray drying of ceramic materials

PG3/12(91) - plaster processes

PG3/13(91) - asbestos processes

PG3/14(91) - lime slaking processes

PG6/1(91) - animal by product rendering

PG6/7(91) - printing and coating of metal packaging

PG6/8(91) - textile and fabric coating and finishing processes

PG6/9(91) - manufacture of coating powder

PG6/12(91) - production of natural sausage casings, tripe, chitterlings and other boiled green offal products

PG6/13(91) - coil coating processes

PG6/14(91) - film coating processes

PG6/15(91) - coating in drum manufacturing and reconditioning processes

Notes published in February 1992

PG1/10(92) - waste derived fuel combustion processes less than 3 MW

PG6/11(92) - manufacture of printing ink

PG6/16(92) - printworks

PG6/17(92) - printing of flexible packaging

PG6/18(92) - paper coating

PG6/19(92) - fish meal and fish oil

PG6/20(92) - paint application in vehicle manufacturing

PG6/21(92) - hide and skin processes

PG6/22(92) - leather finishing

PG6/23(92) - coating of metal and plastic

PG6/24(92) - pet food manufacturing

PG6/25(92) - vegetable oil extraction and fat and oil refining

PG6/26(92) - animal feed compounding

PG6/27(92) - vegetable matter drying

PG6/28(92) - rubber processes

PG6/29(92) - di-isocyanate processes

PG6/30(92) - production of compost for mushrooms

PG6/31(92) - powder coating (including sheradizing)

PG6/32(92) - adhesive coating

PG6/33(92) - wood coating

PG6/34(92) - respraying of road vehicles

PG6/35(92) - metal and other thermal spraying processes

PG6/36(92) - tobacco processing

PG6/38(92) - blood processing

PG6/39(92) - animal by-product dealers

Notes published in May 1992

PG6/10(92) - coating manufacturing

Notes published in June 1992

PG1/11(92) - reheat and heat treatment furnaces, 20-50MW net rated thermal input

* Note has been substantially amended

NB: PG6/6(91) and PG6/37(92), dealing respectively with fur processes and knackers yards, are no longer applicable because these have been removed from the list of prescribed processes